SECTION 2 NON-TECHNICAL ABSTRACT

Prostate cancer is the most commonly diagnosed malignancy in men. Although conventional therapies (surgery and radiation therapy) produce high cure rates of early stage prostate cancer, many tumors recur and metastasize. There is a real need to develop new therapies that may improve the effectiveness of conventional cancer therapies.

In light of this, we have developed a novel, multi-faceted gene therapy approach for the treatment of prostate cancer. Our approach utilizes a modified cold virus, called an adenovirus, to deliver a pair of therapeutic genes to prostate tumors. The adenovirus itself generates a potent anti-tumor effect by preferentially replicating in and destroying prostate tumor cells. The tumor-specific killing effect of the virus can be enhanced by combining it with a form of tumor-targeted chemotherapy called suicide gene therapy. Activation of the suicide genes renders malignant cells sensitive to specific chemical agents (prodrugs) and sensitizes them to the therapeutic effects of radiation. Two Phase I clinical trials that evaluated the safety of this gene therapy approach without and with radiation therapy have been completed. The treatment was well tolerated and is showing signs of anti-tumor activity.

The study described here is a logical follow-up of our two previous clinical trials. We will determine whether combining gene therapy with radiation therapy is more effective at eliminating the cancer than radiation therapy alone. The study will involve men with intermediate-to-high risk prostate cancer. Our hope is that the gene therapy will improve the effectiveness of radiation therapy, and that this combined approach may ultimately provide another therapeutic option for patients with intermediate-to-high risk prostate cancer.